

REMARKS

Claims 1-24 are pending in the present application. Claims 1, 3-6, 9-11, 14-15, 18, and 21-22 have been amended to clarify the subject matter contained therein. Claim 23-24 have been newly added. Support for the amendments to claims 1, 3-6, 9-11, 14-15, 18, and 21-22 as well as new claims 23-24 may be found throughout the specification and claims as originally filed. Accordingly, the subject amendments do not introduce new subject matter within the meaning of 35 U.S.C. §132 and entry of the amendments is respectfully requested.

In view of the remarks set forth below, further and favorable consideration is respectfully requested.

CLAIM OBJECTION

Claim 22 has been objected to under 37 C.F.R. 1.75(c), as being in improper form for failing to further limit the subject matter of a previous claim. Specifically, the Examiner asserts claim 12, from which claim 22 depends, requires the oxidant to be oxygen, hydrogen peroxide, or amine N-oxide.

Claim 22 has been amended to recite the method of claim 12, wherein the amine N-oxide is pyridine N-oxide or trimethylamine N-oxide. Accordingly, Applicants respectfully submit as amended claim 22 now further limits the subject matter of claim 12 as the amine N-oxide is further defined as being pyridine N-oxide or trimethylamine N-oxide.

Applicants submit the amendments to claim 22 obviate the basis for the objection thereto. Accordingly, the Examiner is requested to reconsider and withdraw this objection.

REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Claims 1 and 18 have been rejected under 35 USC § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts in claim 1, the term "sulfides" is new matter. Additionally, the Examiner asserts in claim 18, both "(YPP)" and "(C₂-C₁₈)" are new matter.

Applicants respectfully traverse this rejection.

The term "sulfides" has been deleted from claim 1 without prejudice or disclaimer, and replaced with the term "chalcogenides." Support for amended claim 1 can be found throughout the claims and specification as originally filed, for example, in original claim 1. Accordingly, Applicants submit claim 1 does not contain new matter.

Additionally, claim 18 has been amended to correct minor typographical errors. Specifically, claim 18 now recites the proper abbreviation for triphenylphosphine, "(TPP)," in place of "(YPP)." Additionally, claim 18 recites "(C₃-C₁₈)" in place of "(C₂-C₁₈).". Support for amended claim 18 can be found, for example, at paragraph 39 of the presently published application as well as claim 7 as originally filed. Therefore, Applicants submit claim 18 does not contain new matter.

In view of the foregoing, Applicants respectfully submit claim 1 and claim 18 fully comply with the written description requirement. Accordingly, the Examiner is requested to reconsider and withdraw this rejection.

REJECTIONS UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Claims 1-22 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claim 1

Claim 1 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 1 is indefinite for the following three reasons: the phrase "allowing one or more of thermal decomposition, reduction, oxidation, sulfidation or phosphidation of said reaction" mixture is indefinite; the phrase "the reacted mixture" lacks proper antecedent basis; and the phrase "poor solvent" is indefinite.

Applicants respectfully traverse this rejection.

Claim 1 has been amended to recite a method of synthesizing uniform nanorods of metals, alloys, metal oxides, metal nitrides, metal phosphides, and metal sulfides, comprising the steps of: reacting a metal precursor and a first surfactant in a first solvent to form a metal-first surfactant complex solution; injecting said metal-first surfactant complex solution into a second solution comprising a second solvent, a second surfactant and a reagent at high temperature using a syringe pump at a controlled injection rate to form a reaction mixture; forming the nanorods by reacting the reaction mixture, wherein the reacting further comprises thermal decomposition, reduction, oxidation, sulfidation and phosphidation; separating and precipitating said nanorods in the reaction mixture by adding a poor solvent; and retrieving said nanorods by centrifuging.

As amended claim 1 no longer recites the phrase "allowing one or more of thermal decomposition, reduction, oxidation, sulfidation or phosphidation of said reaction." Additionally, Applicants submit a typographical error has been corrected in claim 1. Therefore, rather than reciting the phrase "the reacted mixture," amended claim 1 recites "the reaction mixture."

Further, Applicants respectfully disagree with the Examiner's assertion that the phrase "poor solvent" is indefinite because the phrase is clearly defined in the specification. Specifically, paragraph 33 of the published present application states:

the poor solvent is a solvent that does not disperse said nanorods effectively, but induces precipitation of said nanorods readily.

Accordingly, reading the claims in view of the specification, a skilled artisan would fully understanding the meaning of "poor solvent" in claim 1.

In view of the foregoing, Applicants respectfully submit claim 1 is definite within the meaning of 35 U.S.C. § 112.

Claim 3

Claim 3 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 3 is indefinite because: the phrase "said metal

precursors are...through X metals" is indefinite because it recites that the metal precursors are metals and not precursors; and the phrase "the groups II through X metals" is indefinite as to which metals this means.

Applicants respectfully traverse this rejection.

Claim 3 has been amended to recite the method of claim 1, wherein said metal precursors comprise metals selected from the group consisting of iron [Fe], cobalt [Co], nickel [Ni], chromium [Cr], manganese [Mn], barium [Ba], strontium [Sr], titanium [Ti], zirconium [Zr], platinum [Pt], palladium [Pd] and the metals in groups II through X of the periodic table of elements.

Amended claim 3 no longer recites that the metal precursors are metals. Specifically, amended claim 3 recites metal precursors **comprise** metals. Additionally, as amended claim 3 now recites "the metals in groups II through X of the periodic table of elements," claim 3 is clear with regard to the metals disclosed therein.

In view of the foregoing, Applicants respectfully submit claim 3 is definite within the meaning of 35 U.S.C. § 112.

Claim 4

Claim 4 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts

that claim 4 is indefinite because the phrase "said precursors" lacks proper antecedent basis.

Applicants respectfully traverse this rejection.

Amended claim 4 recites the method of claim 1, wherein the metal precursors comprise ligands selected from the group consisting of carbonyl [CO], nitrosyl [NO], cyclopentadienyl [C₅H₅], acetate, aromatic compounds and alkoxides.

Applicants submit as amended claim 4 is definite within the meaning of 35 U.S.C. § 112, second paragraph. Specifically, claim 4 no longer recites "precursors alone." As amended claim 4 recites the phrase "the metal precursors." Antecedent basis for this phrase can be found in claim 1.

In view of the foregoing, Applicants respectfully submit claim 4 is definite within the meaning of 35 U.S.C. § 112.

Claim 5

Claim 5 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 5 is indefinite because: the phrase "said metal salts" lacks antecedent basis; the phrase "whereby these metal salts are metals" is indefinite because it is reciting that the metal salts are metals; the phrase "and anions...alkoxides" is indefinite because alkoxides are not

anions; and because the "whereby" clause is confusing and indefinite.

Applicants respectfully traverse this rejection.

Amended claim 5 recites the method of claim 1, wherein said metal precursors comprise metal salts, the metal salts being selected from the group consisting of iron(III) chloride $[\text{FeCl}_3]$, iron(II) chloride $[\text{FeCl}_2]$, iron(II) sulfate $[\text{FeSO}_4]$, iron(III) nitrate $[\text{Fe}(\text{NO}_3)_3]$, cobalt(III) chloride $[\text{CoCl}_3]$, cobalt(II) chloride $[\text{CoCl}_2]$, cobalt(III) nitrate $[\text{Co}(\text{NO}_3)_3]$, nickel(II) sulfate $[\text{NiSO}_4]$, nickel(II) chloride $[\text{NiCl}_2]$, nickel(II) nitrate $[\text{Ni}(\text{NO}_3)_2]$, titanium tetrachloride $[\text{TiCl}_4]$, zirconium tetrachloride $[\text{ZrCl}_4]$, hydrogen hexachloroplatinate(IV) $[\text{H}_2\text{PtCl}_6]$, hydrogen hexachloropalladiate(IV) $[\text{H}_2\text{PdCl}_6]$, barium chloride $[\text{BaCl}_2]$, barium sulfate $[\text{BaSO}_4]$, strontium chloride $[\text{SrCl}_2]$ and strontium sulfate $[\text{SrSO}_4]$, wherein the metal salts comprise metals and either anions or alkoxides.

As amended, the term "metal salts" is properly introduced in claim 5. Therefore, all instances where "metal salts" are recited thereafter have proper antecedent basis. Additionally, amended claim 5 no longer recites the phrase "whereby these metal salts are metals."

Further, Applicants respectfully disagree with the Examiner's assertion that alkoxides are not anions. Specifically, as known by those skilled in the art, alkoxides can be anions. However, solely in order to advance prosecution of the presently pending application,

Applicants have amended claim 5 to recite "the metal salts comprise metals and either anions or alkoxides." Newly added claim 23 further defines the metals and anions of claim 5.

Additionally, the "whereby" clause of claim 5 has been amended to recite "wherein the metal salts comprise metals and either anions or alkoxides." Applicants submit the amended clause now further defines the metal salts introduced at the beginning of claim 5.

In view of foregoing, Applicants respectfully submit claim 5 is definite within the meaning of 35 U.S.C. § 112.

Claim 8

Claim 8 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 8 is indefinite because the phrase "said first second solvents" lacks proper antecedent basis.

Applicants respectfully traverse this rejection.

Applicants submit as amended claim 1 provides proper antecedent basis for the phrase "said first and second solvents" recited in claim 8.

In view of the foregoing, Applicants respectfully submit claim 8 is definite within the meaning of 35 U.S.C. § 112.

Claim 10

Claim 10 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 10 is indefinite because: the phrase "said surfactant" is indefinite as to which one this refers to (the first or second); and the phrase "the first solution" lacks antecedent basis.

Applicants respectfully traverse this rejection.

Amended claim 10 recites the method of claim 1, wherein the molar ratio of said metal precursor to said first surfactant in the metal-first surfactant complex solution is in the range between 1:0.1 and 1:100.

As amended, it is clear that the surfactant recited in claim 10 is the first surfactant. Additionally, the phrase "the first solution" has been amended to recite "the metal-first surfactant complex solution." Antecedent basis for the phrase "the metal-first surfactant complex solution" can be found in claim 1.

In view of the foregoing, Applicants respectfully submit claim 10 is definite within the meaning of 35 U.S.C. § 112.

Claim 11

Claim 11 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 11 is indefinite because it does not appear possible that the metal sulfides can be formed using a reagent selected from the group consisting of elemental sulfur (S₈), selenium (Se), tellurium (Te), trioctylphosphine selenide (TOPSe), trioctylphosphine sulfide (TOPS) and trioctylphosphine telluride (TOPTe).

As amended, claim 11 recites the phrase "metal chalcogenides" in place of the phrase "metal sulfides." Accordingly, this rejection has been obviated.

In view of the foregoing, Applicants respectfully submit claim 11 is definite within the meaning of 35 U.S.C. § 112.

Claims 14 and 15

Claims 14 and 15 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claims 14 and 15 are indefinite because the phrase "said metal-surfactant complex solution lacks antecedent basis.

As amended, both claims 14 and 15 now recite the phrase "metal-first surfactant complex" in place of the phrase "metal-surfactant complex." Antecedent basis for

the phrase "metal-first surfactant complex" can be found in claim 1.

In view of the amendments to claim 14 and 15, this rejection has been obviated. Accordingly, Applicants respectfully submit claims 14 and 15 are definite within the meaning of 35 U.S.C. § 112.

Claim 21

Claim 21 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that claim 21 is indefinite because: the phrase "metal compounds" lacks proper antecedent basis; and the phrase the metal alkoxides lacks proper antecedent basis

As amended, claim 21 recites the phrase "organometallic compounds" in place of the phrase "metallic compounds." Antecedent basis for "organometallic compounds" can be found in claim 2. Additionally, amended claim 21 recites the phrase "metal alkoxide compounds" in place of the phrase "metal alkoxides." Antecedent basis for "organometallic compounds" can be found in claim 2.

In view of the amendment to claim 21, this rejection has been obviated. Accordingly, Applicants respectfully submit claim 21 is definite within the meaning of 35 U.S.C. § 112.

Therefore, Applicants respectfully submit claims 1-22 are clear and definite within the meaning of 35 USC § 112, second paragraph. Accordingly, the Examiner is respectfully requested to withdraw these rejections.

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CONCLUSION

In view of the foregoing, Applicants submit the pending claims are in condition for allowance. Early notice to this effect is earnestly solicited. The Examiner is invited to contact the undersigned attorney if it is believed such contact will expedite the prosecution of the application.

If the Examiner has any questions or comments regarding this matter, he is welcomed to contact the undersigned attorney at the below-listed number and address.

Respectfully submitted,

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